THE

VETERINARY JOURNAL

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JUNE, 1929.

Editorials

BIRTHDAY HONOURS LIST.

MEMBERS of the profession will be pleased to note the names of three of their number in the King's Birthday Honours List—Mr. J. J. R. Jackson, M.R.C.V.S., Chief of the Veterinary Staff of the Ministry of Agriculture and Fisheries, who receives a Knighthood ; Colonel F. Johnson McCall, M.C., M.R.C.V.S., who is awarded a C.B.E. ; and Major Henry Allen, M.R.C.V.S., who is the recipient of an O.B.E. (Military Division).

Sir J. Ralph Jackson, who graduated from the London College in 1897, and whose photograph has already appeared in the VETERINARY JOURNAL for June, 1926, is well known to his colleagues in Great Britain and Ireland for the great organising work which he has done in connection with the Veterinary Department of the Ministry of Agriculture and Fisheries, where he succeeded the late Sir Stewart Stockman in 1926 ; and a number of the present methods of stamping out disease amongst farm stock owe their success to Sir Ralph Jackson's energy and foresight. The profession has every confidence in his judgment and has loyally co-operated in all the schemes which have been issued by the Department whilst under his control ; and the present satisfactory position of the steady eradication of contagious diseases from farm animals is a testimony to the esteem and respect n which he is held by his colleagues.

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Lt.-Col. Frederick Johnson McCall, C.B.E., M.C., M.R.C.V.S., is a son of the late much revered and esteemed Principal McCall, the founder of the Glasgow Veterinary College, from which Colonel McCall graduated in 1908; and Major Henry Allen, O.B.E., M.R.C.V.S., R.A.V.C., who graduated from the London College in 1899, is at present in charge of the well-known Remount Depot at Mona, India.

We congratulate these three gentlemen on their well deserved honours.

THE ERADICATION OF SHEEP SCAB FROM GREAT BRITAIN.

EVERYONE interested in live stock and farm animals will have seen in the Agricultural and daily press the alarm note which was sounded by the Council of the Royal Agricultural Society on the increasing prevalence of sheep scab in Great Britain; and the apparent futility of controlling this troublesome disease, owing largely to the slack and inefficient manner in which the Regulations of the Ministry of Agriculture were sometimes carried out. Some idea of its increased prevalence can be gathered by the published returns of the Ministry which show that the total number of outbreaks up to the beginning of June, amount to 366 as against 274 at the same date last year.

The Veterinary Committee of the Royal Agricultural Society, whose Chairman, Sir Merrik Burrell, is well known to every member of the veterinary profession, took up this question a few months ago and issued letters to the Animal Committees of County Councils and other public bodies, urging that special attention should be devoted to the eradication and prevention of this disease. The result has been a very much greater activity against sheep scab and a much stricter administration of the order.

At the same time this is only the beginning of the greater effort which still remains to be made, and in our columns this month will be found two articles on the subject by experts which will prove most interesting reading, equally to practitioner and student. Mr. W. Jackson Young's name is too well known as an official of long experience with the Ministry of Agriculture and Fisheries to need any introduction, and the firm of Messrs. Cooper, Son & Nephews, originally founded by a member of our profession, has a reputation which extends not only throughout Great Britain and its Colonies but the whole world over.

We commend both articles to the careful perusal, as we have already said above, of practitioner and student alike.

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General Articles

THE ERADICATION OF SHEEP SCAB.

By W. JACKSON YOUNG, F.R.C.V.S., D.V.S.M. (Vict.).

So much has been said and written by so many authorities on this subject that it is difficult, unless one comes fresh from some phase of research, to write anything which is not already known.

Agitations are going on at present pressing the Central and Local Authorities in Great Britain to utilise all powers possessed to eradicate this condition of the sheep's skin.

There are, however, many factors that militate against the success of the policy being adopted.

In some areas, continuous wet weather and the mountainous nature of the grazings may be held responsible, while in others, apathy, ignorance and inertia are the stumbling blocks.

The writer, after a lengthy experience of the administrative control of sheep scab is disappointed with the results obtained, more especially when he visits large sheep farms and finds no dipping apparatus, encounters owners and shepherds who do not understand the proper method of mixing dips and has numerous interviews with flockmasters who firmly believe that the condition will never be eradicated.

Examples of carelessness in gathering and dipping sheep are very numerous. Cunning methods of concealment have been adopted and unfortunately the penalties inflicted for such conduct have been totally inadequate.

Much more requires to be done before there is a diminution in the number of outbreaks. A properly organised educational campaign is urgently required and veterinary surgeons, inspectors (lay and veterinary), owners, shepherds, police officers, sheep dip manufacturers, dipping bath makers, technical chemists, pharmacists, biologists and wool brokers should each assist in making it successful.

The Veterinary Surgeon and Veterinary Inspector have the responsibility of reporting suspected cases and confirming the existence of the condition.

The Veterinary Inspector's opinion when he gives his decision in writing can be appealed against and, therefore, he is required to retain the parasite on which he bases the diagnosis. The parasites are more readily found at the periphery of the lesions and can be preserved mounted in Farrant's medium or in a small tin box with a glass lid. The slide or receptacle should be properly labelled with name of sheep owner, place where sheep were examined and the date.

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Brief Description of the Parasite.

The *Psoroptes communis var. ovis* belongs to the Class Arachnida ; Order Acari ; Sub-order Sarcoptoidea ; Family Sarcoptidae.

It is commonly called the mite of sheep scab.

The mature mites (Figs. 1 and 2) measure 1/40 to 1/50 of an inch and the female is somewhat larger. The mites can be seen with the naked eye and in the majority of cases encountered by the writer he is able to pick up the parasites from the lesions with a pin aided occasionally by using a small hand lens.

FIG. 1.—Psoroptes communis (var. ovis). *Adult Male.* × 70.

The adults have four pairs of legs, visible from above as they project from the sides of the body.

A stalk and sucker are found on the first, second and third pair of legs in the male and on first, second and fourth pair of legs in the female. The stalk is long and three-jointed.

The eggs (Fig. 3) measure about 1/125 of an inch and in Great Britain it has been found that the usual number laid by each female is 15. In South Africa, however, it is recorded that the number laid is 80.

When egg laying is completed, the parasite dies.

Life History of the Acarus.

This is of the greatest importance as it is the basis of the present efforts directed towards the eradication of the scourge. The eggs are usually hatched outside the body of the acarus. Occasionally a specimen (Fig. 4) is encountered in which an apparently fully formed larva can be seen inside the female. Two eggs are commonly carried by the female at one time and sometimes one or three (Figs. 5 and 6).

The eggs hatch in from two to five days.

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The larvæ (Fig. 3) feed and moult into nymphæ—time occupied, four days.

The nymphæ (Fig. 7) have 8 legs and suckers on the first, second and fourth pair of legs but have no mating tubercles at the posterior part of the body.

The nymphæ moult into the stage of pubescent female or male—time occupied, four days.

After mating, the females moult to the stage of ovigerous females —time occupied, about two days.

The time occupied by the life cycle under ordinary conditions is about ten days, with slight variations either way, but delayed breeding and progression must be reckoned with in practice.

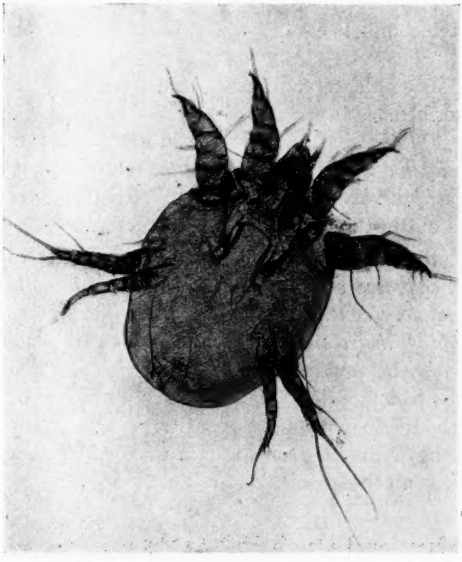

FIG. 2.—Psoroptes communis (var. ovis). *Adult Female.* × 70.

For measures of control and eradication, the basic period of the cycle is not considered from egg to fully developed adult female but egg to egg, thus another two days may safely be added to the cycle when legislation is designed to prevent egg laying.

The males continue to live after they have fertilised the females. Very much of the research into the life cycle has been carried out by Mr. A. H. Berry, F.R.C.V.S. (Ministry of Agriculture and Fisheries, London), the late Sir Stewart Stockman and the late Mr. A. W. Shilston, M.R.C.V.S.

The acari have been found to remain alive off the sheep for a month to six weeks at the longest, but most of them die before this time. Most of the eggs are said to hatch in a few days and there are records of eggs having hatched two and even four weeks after removal from the sheep.

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Present-day Legislation.

The Sheep Scab Order of 1928 and a short Amendment Order of 1928 are the sole Orders pertaining to sheep scab in Great Britain. These Orders require to be carefully studied as they are based on sound scientific evidence.

Many agitators against the policy of eradication that is being pursued have not read the Orders carefully and one frequently sees suggestions offered that are already embodied and have been for several years.

The average stock-owner and his servants devote little time to the study of law. On the other hand, dealers do so and are ready to detect any weaknesses.

A strict enforcement of the Orders mentioned with those pertaining to the importation of sheep from Ireland, The Channel Islands and Isle of Man are sufficient for the complete control and ultimate eradication of the condition.

The double dipping of affected sheep and sheep that have been exposed to infection is prescribed.

This term is defined as "*dipping twice, the second dipping taking place not earlier than the eighth day and not later than the fourteenth day after the date of the first dipping (excluding that date).*" The dippings are required to be carried out in the presence of an Inspector.

The Minister of Agriculture also points out in a Circular Letter to Local Authorities "*if an approved sheep dip which contains arsenic is used for the second of a statutory double dipping, and a similar dip has been used for the first dipping, the second dipping should not take place earlier than the tenth day after the first dipping.*"

It is thus seen that the policy of double dipping has been followed after a careful study of the life history of the parasite. No sheep dip (notwithstanding the claims of advertisers) is known that will destroy the eggs without doing very much damage to the skin.

Educational Campaign.

In order to dispel many deep-rooted misconceptions, an illustrated lecture is of great assistance in any district where sheep scab has been confirmed. The Minister of Agriculture informs stock-owners that the services of Veterinary Inspectors are available for giving such lectures in English, Welsh or Gaelic. The writer has delivered many lectures and has had large and enthusiastic audiences and has always encouraged criticism.

Frequently from the nature of the questions asked, one can learn that there is room for enlightenment of owners and their servants.

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Education, however, would be useless if confined to giving addresses. Owners and shepherds should be shown the acarus on affected sheep and after its removal. By so doing, their interest is aroused and one can recall many instances where the examination of the parasite has given the necessary fillip towards the speedy destruction of the parasites.

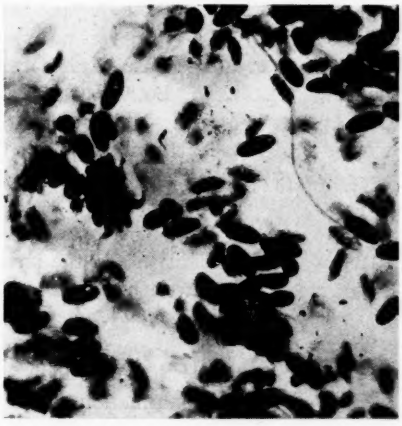

FIG. 3.—Psoroptes communis (var. ovis). *Eggs and larva.* × 30.

FIG. 4.—Psoroptes communis (var. ovis). *Adult female containing mature larva unborn.* × 70.

It has been truly said, that British workmen are the best in the world. Shepherds know very much sheeplore and seem anxious to learn. They are intensely shy and conservative and may be inclined to listen to scientific facts with a fair amount of scepticism.

Within the past six months, the writer had an interesting interview with a shepherd aged 78 years who had never seen or heard of the acarus of sheep scab. His master had bought some sheep and sheep scab came with them. Without demur he guided the Officers of the Local Authority and myself to the hill where the scabby sheep were and one was caught for inspection.

With little difficulty a good specimen of an adult acarus was picked up from a lesion on the buttock and the shepherd was handed the specimen. In answer to questions aimed at testing his powers of observation he correctly stated the number of legs and mentioned that the parasite seemed to have a red cravat

round its neck. The shepherd appeared very interested and was told a few interesting facts concerning the Biblical reference to sheep scab, the minute anatomy of the parasites, and it was pointed out that double dipping if properly done would stamp out the complaint. The shepherd absorbed all like a sponge does water and in a few days' time sent some very clever poetry on sheep scab to the writer who replied to him also in verse. It is only fair to mention that this veteran shepherd told the Local Authority Veterinary Inspector that the writer might know a little about sheep scab but he did not know how to write poetry. Thirty minutes spent with a man of this type does very much good as he will undoubtedly pass on the information obtained to others, including his master.

Veterinary Surgeons can do much to assist by explaining to owners, shepherds and police officers the nature of the condition and the importance of careful dipping and the reason for what might be termed " the long period of incubation."

Many protests are lodged every year against the double dipping of sheep that are considered to have had contact with affected ones during the period of six months previous to the confirmation of the outbreak.

The Veterinary Inspector too infrequently assists the Inspector with facts concerning the advisability of tracing certain lots.

There has been good reason for protests in many instances and perusal of the Sheep Scab Order of 1928 will show an effort has been made to minimise such complaints as on the isolation notice (Form C) and Dipping notice (Form E), the reasons for service of the notices have to be stated.

The Veterinary Inspector is required to give directions in writing regarding the treatment of affected sheep.

He should explain that two dippings within the prescribed period are not always successful in curing the condition.

The writer has experience of sheep having been dipped 11 times before he could definitely say that freedom could be safely granted.

Education of police officers regarding the necessary correspondence that passes to other Local Authorities is a necessity. Such correspondence in a short time becomes very intricate but much trouble could be saved if in the first instance the ear, horn, or other distinguishing marks of the sheep that require to be traced were furnished.

Some Local Authorities are in the habit of failing to reply to such correspondence. Occasionally one meets a Chief Constable who requires a complete report of the outbreak and the ramifications of the tracings. The writer has read many of these lucid reports with very much interest and realises full well the amount of time spent in their

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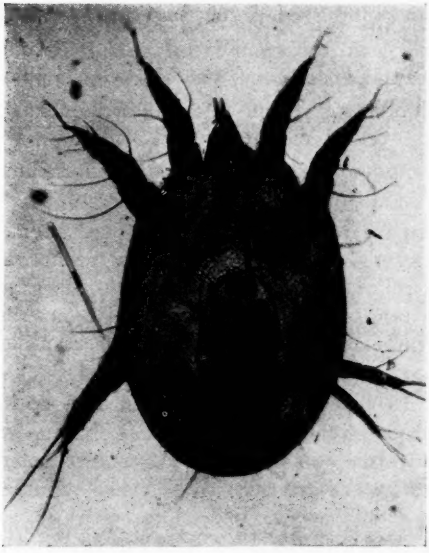

FIG. 5.—Psoroptes communis (var. ovis). *Adult female. Containing egg.* × 80.

FIG. 6.—Psoroptes communis (var. ovis). *Adult female. Containing* 3 *eggs.* × 80.

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preparation. Each Local Authority would be well advised to ask for such reports to be furnished by the Chief Inspector.

The reports could be presented to Committees and the members would then see that efforts were being made to stamp out sheep scab.

Research workers have still much information to supply to those engaged in the work of eradication.

Portable outfits for testing sheep dips are in use in some countries but seldom seen in Great Britain.

Information regarding the acaricidal value of some of the sheep dips on the market would be welcomed and facts concerning the wetting power, penetrability and toxicity should also be ascertained. The writer is fully aware of the literature that exists on such research but regrets that it has not found its way into publications usually read by Veterinary Surgeons.

Agricultural colleges could do more than they do by ascertaining the best methods of breaking hard waters for use in mixing dips. Much damage to the eyes of sheep has been encountered by the injudicious use of water softeners.

FIG. 7.—Psoroptes communis (var. ovis). *Nymph*. × 100.

Local Authorities might be asked to provide proper dipping places and charge for their use and thus use their statutory powers.

There are "worlds still to conquer" in connection with the eradication of sheep scab, but the writer is convinced that each difficulty can be overcome by the display of personal as opposed to material capital. By personal capital is understood the skill, ability, genius and disposition of the individual—capital which is owned to some extent by everyone connected with agriculture. Indifference and apathy require to be eliminated and optimism, vigorous and sustained endeavours substituted. May each and all of us who possess veterinary qualifications "do our bit" towards rendering assistance and when the day comes for historians to write of the complete suppression of sheep scab, may they be able (and not forget to do so) to point out that the Veterinary Profession was untiring in its efforts and rendered the greatest possible assistance.

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Team work is essential and continuous pursuit obligatory.

For the loan of the blocks used to illustrate this article, the writer expresses grateful thanks to the Highland and Agricultural Society of Scotland. They were used to illustrate an informative article on "Sheep Scab," by the late Sir Stewart Stockman, which appeared in the "Transactions" of the Society in 1925.

Clinical Articles

Ulcerative Dermatitis of Pigs Associated with Presence of Treponema in the Lesions.

By DUDLEY A. GILL, M.R.C.V.S.,
Government Veterinary Officer, New Zealand.

In the literature available in New Zealand there is only scanty reference to this condition. Hutyra and Marek (1) state that Dodd, working in Pretoria, found a spirochaete (Spirochaete Suilla) connected with superficial ulcers extending over the entire body surface of young pigs; and that he succeeded in transmitting the disease to healthy hogs by rubbing material from ulcers into scarifications of the skin. They also state that Cleland in West Australia found a similar parasite in the fibrous nodules occurring in castration wounds of hogs; and Gilruth found them in submucous cysts of the large intestine. Matteo found a spirochaete causing a severe affection of hogs in the lowlands of Erythraea. Hoare (2) mentions the same facts at slightly greater length and in his final paragraph on the subject appears doubtful as to whether these conditions are actually due to the spirochaetes found in the lesions.

Necrotic ulcers are fairly commonly met with on young pigs in this country, but in March of 1928 some specimens were forwarded to this Laboratory in which B. necrophorus could not be found, while a spirochaetal organism was observed in large numbers. The conclusion was formed that we were dealing with the same condition which Dodd and Cleland had described.

This year, particularly in one district, there have been a number of outbreaks of similar nature (no B. necrophorus but numerous spirochaetes in the lesions) and from information gathered indirectly it seems that considerably more of it has occurred in other districts than has actually been reported.

The writer visited the area from which most reports were received with a view to gathering first hand information, and some of the facts

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about the cases were interesting. The following are brief notes on three occurrences :—

B—— bought 16 pigs in October at a local Saleyard. After they had been on his farm for about 8 weeks a slight rash appeared on them. Some of these lesions subsequently developed into ulcers. Seven of the 16 were so badly affected that he destroyed them (specimens from this outbreak were examined at the Laboratory). Three others were given local treatment with copper sulphate by the owner, and eventually recovered. None of his own pigs ever showed any signs of it but whereas the bought-in pigs were housed in wooden sties from which there was no drainage, and which consequently were in a horribly insanitary condition, his own were running out in quite good pig-paddocks.

C—— had a few affected last year. At that time a particularly dirty sump, filled with effluent from the pig sties, was not fenced off in any way, and the pigs had free access to it. This year he has the sump fenced in. About a dozen have been affected and in all but three or four instances it has been on the scrotum after castration. One of the exceptions, showing a large ulcer on each side of the neck and one on the right forehead, was forwarded to the Laboratory as a source of fresh material. It was obviously unwell, but showed no symptoms suggesting any definite disorder and it was a surprise to find it dead on the third morning after its arrival. *Post-mortem* examination was still further surprising as it showed very extensive and typical lesions of Pasteurellosis (confirmed by animal inoculation). This will be mentioned again later. Unfortunately it was found that the ulcerative condition was in an advanced stage of healing.

L—— had several cases two years ago which he believes were the same. Last year had few, if any. This season has had a dozen or more. He killed several, two or three recovered. On looking round his pigs we found three more cases. Of these two showed rather unusual lesions. There was a small external wound on the ear suggesting a tooth mark, or a slight tear with barbed wire, and from this the infection had burrowed inward between the layers of the external ear, causing marked swelling resembling at first sight, that seen in the case of hæmatoma of the ear in dogs. As the owner wished it, both these pigs were killed, but no other lesions of any note were discovered at *post-mortem*. The third affected pig showed a lesion over the right eye, about two inches across, with necrosed edges and in the centre showing the bony structures which were commencing to slough off in large flakes. It also showed an extensive lesion below the right elbow. This pig, unlike the other two, was doing badly though it showed no definite symptoms. On *post-mortem* the same extensive and typical Pasteur-

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ellosis lesions were found as in the pig mentioned above which died at the Laboratory. The pig pens and sties in this case were old and in poor order generally, and there was a dirty mud pool in one part, used by the pigs as a wallow.

Specimens derived from these three outbreaks were examined microscopically and showed conclusively, to my mind, that the condition was not due to invasion by B. necrophorus as organisms bearing a morphological resemblance to this type could not be found. On the other hand spirochaetes or perhaps, from the situation, it would be more correct to call them treponema, were consistently present, and moreover while few were seen in smears from the surface of the lesions, if a preparation was made from about the junction of the necrosed tissue with the reactionary fibrous tissue zone, they were seen to be present in considerably greater numbers, though by no means unmixed with various other organisms.

In connection with the staining of these organisms Fontana's method gave the best results, Chinese ink was not quite so good. In the routine examination of pathological specimens one would not, of course, apply these methods, some more ordinary stain would be used, and it is of interest to note in passing that whereas in unpreserved material these stains left the treponemas almost entirely unstained, yet if 5-10% formalin had been used as a preservative each of them showed the treponema up faintly but nevertheless unmistakably. Possibly this may explain why these organisms have not been found more frequently, and probably a further reason is that the resemblance of the lesions to those of necrobacillosis is so close that no doubt it has often been diagnosed as such in the field without recourse to microscopical examination at all.

Whether these treponemas are the actual cause of the lesions is doubtful. An attempt was made to transmit the condition to a young, healthy pig by rubbing material, shown microscopically to be rich in treponemas, into scarifications of the skin, two sites being thus treated. Nothing in the nature of an ulcer resulted and in a week the two sites were almost indistinguishable from the surrounding healthy skin. In addition an effort was made to pass the condition on to a rabbit. A portion of skin was clipped away at the base of one ear and the resulting wound heavily inoculated with material from an ulcer, and further, a heavy emulsion of similar material was made in normal saline and $\frac{1}{2}$ cc. injected subcutaneously. The result in each case was entirely negative.

As stated above it was found in examining these ulcers that the

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number of treponema was much greater in the depths of the lesions but that even here they were not by any means alone. In sections, prepared according to Levaditis' method for spirochaetes, it was found that at the junction of the diseased and reactionary tissues, while treponema were fairly numerous other organisms, in great variety, were present in even greater numbers so that from that point of view they themselves might with more reason be held responsible. According to Wenyon in Tropical Ulcer of human beings (3), where treponema schaudinni is found in practically pure culture in the depths of the lesions, grave doubts are nevertheless held as to its etiological significance. Organism, of this type are commonly present in the intestinal tract of animals, including pigs, they are frequently present in water, soil, sewage, and, in fact, have a very wide range of existence as saprophytes, so that it would not be unexpected if damaged tissues, with various other organisms present to assist in making conditions of aerobiosis suitable, were to provide an extremely favourable breeding ground for them. No doubt when they have gained a footing in a lesion and are living and multiplying in it their presence, as it were, adds fuel to the fire, but it seems improbable that they have any more direct significance than other admittedly saprophytic types which are well known to flourish under like conditions. It is suggestive that in each of the three outbreaks instanced above there was evidence (1) that skin wounds or other lesions had preceded the rouble, and (2) that conditions in the sties and surroundings were such that one might reasonably expect organisms of the spirochaete class to be present in large numbers.

The case of treponema podovis, postulated recently by Messrs. Ludoric and Pierre Blaizot as the pathogenic cause of a form of footrot among sheep in certain districts of France (4) seems to the writer to be equally one of "not proven." Their suggestion, that the excellent effect which intravenous novarsenobenzol had upon the lesions is proof of the treponema being causative, does not appeal very strongly in view of the well-known effect which organic arsenic preparations have upon concurrent staphylococcal and other lesions when used in the treatment of syphilis in the human subject.

The frequency with which pigs that have died while affected with this condition, or whose health has appeared so poor that the owners have killed them, have shown extensive lesions in the lungs and pleura is rather striking. Two cases are instanced above and many others were encountered by the Stock Inspector in whose district the investigation was made. Probably secondary infection following upon lowered powers of resistance is, broadly speaking, the explanation, but one cannot help wondering whether the ulcerative condition itself may not

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have its origin in lowered resistance. In this country owing to the high cost of concentrates, etc., it is the usual practice for pigs to receive very little except heavily skimmed milk, with or without a certain amount of grazing, and one has often been surprised when observing conditions of feeding and environment out here, why there is not considerably more loss from various diseases than there is.

Except where secondary infection occurs, or there is mechanical interference preventing the animal getting its proper share of food, the lesions do not appear to cause any noticeable illness, and if taken in hand early and thoroughly cleaned up they are not particularly refractory.

SUMMARY. 1. When ulcers on the body surface of pigs are found associated with the presence of treponemas and other organisms it appears likely that the former are actually saprophytes, but find conditions in the damaged tissues highly favourable and therefore multiply there. 2. The body may allow the presence of these and associated organisms because its powers of resistance being lowered, it is unable to evict them. 3. From this it would seem that adequate means of prevention are to be found in the adoption of such feeding practice as will tend to maintain bodily resistance at a high level, and adequate sanitation, so that the pigs' environment is not such as to result in prompt and heavy contamination of any slight superficial wound.

LITERATURE CITED.

(1) Hutyra & Marek's "Special Path. : & Ther."; Vol. 1, page 1079.
(2) Wallis Hoare's "System of Vety."; Medicine Vol. 1, page 1238.
(3) Wenyon's "Protozoology"; Vol. 2, page 1270.
(4) Translation by Dunlop Young, *Vety. Record*, 2.2.29.

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"Equine Contagious Pleuro-Pneumonia" (Paddock Fever).

By MAJOR H. ALLEN, O.B.E., R.A.V.C.,

Remount Depot, Mona, Punjab, India.

Introduction.

"PADDOCK FEVER" adequately expresses the conditions existing in Mona Remount Depot.

Reviewing the subject, influenza (pink eye), contagious equine pleuro-pneumonia, infectious anæmia, strangles, horse-sickness, and purpura hæmorrhagica have many points in common, although clinically they may show great differences. With regard to some of these clinical teaching has been wrong, as not a few are of a polymorphic type.

"Influenza."

When using the name in the Veterinary world we are associating it with human influenza, but the latter is more like contagious equine pleuro-pneumonia.

The French designate "Pink-eye" as a typhoid fever (fièvre typhoide), but it is absolutely distinct from human typhoid fever. Etiologically it has the merit, however, that it does not give rise to any analogy with the human disease in our minds.

Influenza and contagious equine pleuro-pneumonia have been confused in Veterinary literature, which may be due to German teaching (Dieckerhoff) which made the following classifications :—

Influenza catarrhalis (pink-eye).

Influenza pectoralis (contagious equine pleuro-pneumonia).

It also classified an infectious cough, laryngitis and a nasal catarrh, but we now consider that these are not infectious diseases.

The work done on the subject in Holland is so far the best.

Koch in 1900 was commissioned to investigate the disease and on his death was succeeded by Gaffke, and Hutyra and Marek as a result give a rather confused idea about the subject.

Influenza and contagious equine pleuro-pneumonia were included until lately as a single disease, in two different forms, but influenza is due to an ultra-visible virus and is transmissible by blood injections (Berkefeld filtered blood-serum), and other body fluids, but contagious equine pleuro-pneumonia has so far not been transmitted in this way.

Gaffke says that he has transmitted it by feeding tracheal and bronchial washings at an early stage of the disease ; but this has not been verified. Bemelmanns (Holland) failed to transmit it in the above or any other way. Influenza is easily transmitted artificially, whereas

contagious equine pleuro-pneumonia is not transmissible under natural circumstances by direct contact. The semen of some stallions is infective in influenza (Poels). A Roumanian worker (Vechin) has shown that the saliva and pleuritic fluid are infective, as well as the contents of those cysts sometimes formed in the parotid glands, after an attack of influenza. He also found that recovered animals were infective up to 5-6 months after recovery.

Influenza is a highly diffusible disease and spreads alarmingly in intensity within a few weeks, but contagious equine pleuro-pneumonia exhibits quite a different set of properties of the causal agent.

Schutz in 1887 said he found Streptococci in the lungs and it has been held to be the cause of the disease by many workers. Some French workers claimed a Pasteurella as the cause. Pasteur found a Pasteurella in an outbreak amongst horses in Paris, and Lignières said the same as Pasteur ; but Pasteur never claimed it to be the cause. Lignières said that a Pasteurella was the initial cause and that Streptococci were invaders. German workers have claimed that they have found a Pasteurella in the lungs. Pasteurella were never found in the lungs in England, but have been found in the nostrils.

It is now quite clear that Pasteurellæ have nothing to do with the disease, nor with the secondary lesions. This has been confirmed by some German workers.

Streptococci have nothing to do with the disease for the following reasons :—

(*a*) In early cases of the disease which die, no Streptococci are cultivatable from the lung lesions, and only intense congestion of the lungs is seen. They may be found in the upper respiratory tract, but they do not cause a fatal course from this locality.

(*b*) In actual outbreaks when animals are exposed to infection, and careful observations made upon those showing clinical symptoms of pneumonia, we find that a large percentage of other animals contract the disease which is not manifested by pneumonia.

General Outline of Symptoms.

The disease is in fact initially one characterised by high fever and an intense auto-intoxication of centres of the medulla, notably the respiratory and Vaso-motor centres, which causes a more or less intense derangement of the nervous system, and blood vessels, including those of the lungs in particular.

The auto-intoxication causes the lungs to become a highly vulnerable tissue, and a veritable incubator for micro-organisms. The changes produced primarily may cause death, with establishment of lesions, of what we call equine pneumonia.

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During life clinical observations of such an acute case would lead one to think that it was acute pneumonia, and on *post-mortem* no well established lesions would be revealed. The Streptococci must therefore gain access to the damaged lungs, in particular to the spaces formed by transfusion, by wandering down the bronchi or via the blood stream. The lungs would then become a predilection site for Streptococci. Histological examination would prove that the Streptococci reached the lungs by the blood stream.

Examined at an early stage one finds in the lungs multiple centres established in the final divisions of the bronchi, in separate alveoli, and at some distance from each other. You may get separate centres of invasion, and a tendency to prompt necrosis and gangrene when coalescing. Pneumonia may be complicated with pleurisy with large quantities of pleuritic effusion.

In the early stage before streptococcal invasion takes place there is much pleuritic effusion, which is a sign of damage to the blood vessels underlying the pleura. Pleuritic fluid would be favourable for Streptococci if they did find their way into it.

The period of incubation is said by some workers to be about twenty days, but it is difficult to say. In my opinion it is about four or five weeks (Allen).

First of all there is a fairly rapid rise of temperature, 102° to 105°, which drops to normal by lysis on the third morning. Some cases take five to seven days to become normal. If the temperature goes up again after the third day, in all probability pneumonia will supervene.

Pleurisy in other cases necessitating immediate "tapping" may occur on the seventh or eighth day. Temperature "flares" occur from the seventh to ninth day, six days in some cases, and drop to normal by lysis on or about the seventeenth day. Some cases become normal on the tenth or eleventh day. The early "larval" stage is often passed unobserved, and the disease is only noticed when it has set in. During the early stage you usually get certain well marked symptoms which vary in intensity.

Nervous symptoms predominate, tremors, general stiffness, increased respiration, bounding heart beat, and thread-like pulse; which are due to the effect of the virus on the vaso-motor system, thereby causing constriction of the arterioles. Sometimes there is a more or less obvious discharge from the nostril of a rusty brown colour, but this is not constant. Tongue may be hot, and swollen conjunctival mucous membranes are cyanosed and of a leaden colour in some cases.

Patches of localised swelling under the sternum and belly and swelling of the legs. Dropping out of the hair at places, and later becoming badger-brush in appearance, has been noted by some writers.

Intestines may be damaged with hæmorrhage into the alimentary tract.

It has been observed that one may introduce a horse showing marked symptoms of pneumonia and the disease is not transmissible, but it has been found that a month afterwards it may start an outbreak of pneumonia. When the disease is severe in a locality (depot charge) in two places (Paddocks) or more, intervening places (Paddocks) escape. This is true of what happens in Mona Depot in the different charges. One charge may be affected and the others (four) remain free of the disease.

As regards the spreading of equine contagious pleuro-pneumonia, it is said to be quite easy to set up outbreaks by keeping animals in ill-ventilated stables, or under bad hygienic conditions. It is commonly seen amongst young stock, and when climatic conditions are adverse.

The train of symptoms in influenza and contagious pleuro-pneumonia are not dissimilar, but the injury is caused in influenza by the virus in the blood stream, setting up damage to the reticulo-endothelium, as in the case of rinderpest in cattle.

The virus in influenza circulates and has not such a profound effect on the medulla as in the case of contagious pleuro-pneumonia.

Influenza symptoms are those of great depression. There may be bowel trouble, or skin trouble. Conjunctival visible mucous membranes are a mahogany or brick-red colour. Eyelids swollen, etc.

In neglected cases you get pneumonia. Mortality is low. Horses which recover from influenza are resistant to further attacks, and may be carriers for many years, but this is obscure as regards contagious pleuro-pneumonia.

In Germany out of 46,000 cases of contagious pleuro-pneumonia only 4% contracted the disease again.

In England, 'bus horses which had an attack contracted it two years later, and then only lightly. My experience points to the fact that there is a relative immunity in the majority of cases.

On a total of 2,063 animals the numbers affected were 348 of these, 10 or 2.9% were affected twice, and 338 had only one attack.

These figures therefore show the liability to the disease once as being 16.3% ; and the percentage of liability of the disease as 48% of the total strength of stock.

Equine Contagious Pleuro-Pneumonia and Influenza Animals.

There is a difference but a similarity between influenza and contagious pleuro-pneumonia. You could call both diseases influenza if you had influenza of man in your mind's-eye, but it is the latter that has the greatest resemblance to human influenza and transmissibility is very similar to that of human influenza.

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In human influenza the disease was thought to be due to the Pfeiffer bacillus (1892), but it is now said to have very little to do with the disease, as you only find it in 5% of unattacked cases in the respiratory tracts and you do not get it in actual cases. In the human you get the pneumococcus (Mather's coccus which resembles type IV pneumococcus morphologically, but is not bile-soluble) as a secondary invader.

A Dutch worker has stressed the close relationship between contagious pleuro-pneumonia and human influenza. The consensus of authoritative opinion points in the direction of equine contagious pleuro-pneumonia having a similar if not an identical, etiological origin to equine influenza, namely, an ultra-visible virus, and the streptococci found in the lung lesions (and which probably set up the actual lesions) being merely secondary invaders.

If this view is correct, therefore it is not impossible that a tardy recurrence of equine influenza may be manifested in an outbreak in which the secondary invaders are dominant.

In so-called contagious pleuro-pneumonia the mode of transmission is difficult to establish.

The Germans failed to demonstrate transmission by insects.

Can diseases of the variety of equine influenza and equine contagious pleuro-pneumonia be kept alive for several years in a locality and then change their clinical type when they reappear ?

There is a mass of evidence to show that equine influenza can be kept alive for very many years in carriers.

Complications of Contagious Equine Pleuro-Pneumonia.

Damage to the nervous system such as the recurrent laryngeal nerve causing " roaring." Iritis is sometimes seen. A lesion which is sometimes set up is an endocarditis.

Abortion in pregnant mares. Laminitis is said to occur in some cases. Adhesions between lungs and pleura. Marked wasting, and general unthriftiness. Joint troubles—arthritis, and tendo-synovitis of the fetlock joints as sequels, three weeks as a rule, after convalescence. A few cases in which the tendon and tendon sheaths of the extremities are effected, particularly the flexor tendons and large sesamoidean ligament.

Some horses have two attacks, others three, but the vast majority only one attack.

Prophylactic control measures as adopted in Mona Remount Depot.

1. A separate hospital for wounds and lame cases.

2. Periodical disinfection of all water troughs in the various charges (5) and hospitals (8) twice weekly.

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3. Special attention is paid to floors, mangers, buckets and hospital standings which have been occupied by cases. All cases are watered separately.

4. The limitation of movement of stock from one charge to another as far as possible.

5. Recovered "aborted" cases remain convalescent in hospital for two weeks; pleuro-pneumonia cases three weeks.

6. Cases which have had serious complications such as pleuro-pneumonia and pneumonia only may be "carriers" for a long period and are segregated after discharge from hospital for three months, and cases of the abortive type of the disease are segregated for six weeks in small paddocks, in order to restrict their galloping propensities and reduce the number of tendo-synovitis cases as a sequel.

7. All excreta, fodder, and bedding of cases in hospital and segregation convalescent paddocks are incinerated.

8. An early isolation of cases is recommended as the disease is not diffusible and it only spreads when there is a local congestion of equines.

The disease proper is not a pneumonia but it is a complication and therefore it is important to control the primary disease, i.e. fever and nervous prostration.

The virus appears to be more fragible than in influenza (can live for two months), and dies off quickly. It is analogous to that of foot-and-mouth disease which is a fragile virus, and to that of rinderpest. The rational control is very similar to foot-and-mouth disease and rinderpest.

The main controlling point in the disease in Mona Depot is that nearly all the horses live chiefly in open paddocks.

To detect early cases the taking of daily temperatures of some thousands of animals is naturally an impossibility.

Mona Remount Depot Summary Observations.

The attached table shows at a glance the number of cases during 1926, 1927, 1928 and 1929 to date of compilation of this article, and the occurence month by month.

There have been 649 cases from January, 1926 to March, 1929.

The disease skips many animals in the same paddocks, and similarly paddocks remain free, pointing to the fact that some unknown intermedium exists, and a possibility of having to deal with a virus carrier.

It always spreads in an irregular manner throughout the depot and cases occur during the non-fly biting season.

Catarrh in majority of the cases is conspicuous by its absence.

A rusty discharge has been noticed in some of the cases of pneumonia.

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Animals which have not passed through strangles contract the disease as readily as those which have had strangles.

Mules very seldom contract the disease.

The percentage of deaths is .04 to .06.

Some animals contract the disease soon after leaving segregation paddocks where they are on an average six months, others from a couple of months to one or two years.

Cases have occurred in various paddocks without any movement having taken place from one paddock, or from a charge to another, but more cases crop up when a large number of stock are changed over to another charge.

The majority of cases run an uncomplicated (abortive form), evidently owing to the animals being under the best possible hygienic conditions, *i.e.* life in the open air.

Some cases are complicated and a small number assume the chronic type, viz. marked wasting and general unthriftiness, and in others encysted necrotic deposit patches in the lungs are discharged by the respiratory tract.

The continued existence of the disease may be accounted for by the transmission from animals which have not completely recovered, and the introduction of animals in the incubative period during which time the infectivity of the disease is greatest.

The disease appears to be climatic in cycle, and occurs during the months of least bodily resistance, and may be governed by the great variations of day and night temperatures.

Mona depot is very heavily wooded in parts, the land is low-lying when taken on the whole, some paddocks are not well drained, heavy clayey soil in parts, and the sub-soil varies from 12-20 feet, which is near water-logging conditions.

Equine contagious pleuro-pneumonia has never occurred to date in a sister depot forty miles distance from Mona depot.

The former depot is situated on undulating well drained land, and is not heavily wooded, nor do water-logging conditions exist.

In Mona during 1926-27 there were six cases of tendo-synovitis of the fetlock joints, during 1927-28 thirty-seven cases, during 1928 up to 31st March, 1929, nine cases.

On the seventh May, 1928, three hundred head of stock were transferred from Charge III to Charge II, and re-transferred to Charge III on the 17th December, 1928.

The strength of Charge III is at present 753 horses, with an average of about sixty in each paddock, and three hundred and seventy-six mules. In this charge during February and March, 1929, there have been cases amongst the horses (9.29%) and one case amongst the mules (.26%).

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Treatment.

Treatment is governed by the following considerations :—

1. To induce a rapid drop of temperature by lysis, and get under treatment and isolation in the early stages, as the disease is not diffusible and spreads where there is congestion of the equine species.

2. Control the primary disease, *i.e.* fever and nervous prostration, thereby checking the pre-pneumonic stage and limiting inflammatory progress. Rest immediately. The disease proper is not a pneumonia, it is a complication.

3. Induce a rapid cure, thereby restraining sequelæ.

4. Increase appetite.

5. Make every effort to diminish virus carriers.

6. Healthy surroundings.

7. No time should be lost in " tapping " the chest when there are indications of an excess of pleuritic effusion.

8. Sustain heart's action.

9. Reduce auto-intoxication and neutralise toxins.

The choice of preparations for combating the infection which are more parasito-tropic, than organo-tropic.

Intravenous injections of $2\frac{1}{2}\%$ carbolic acid solution during the early stages of the disease :—

10 c.c. of a $2\frac{1}{2}\%$ solution in one pint of normal saline solution is injected intravenously at body temperature as soon as the patient is admitted into hospital.

The dose is increased by 10 c.c. daily, and discontinued as soon as the temperature drops to normal.

As a rule three to four injections suffice in the " abortive " type of the disease.

Auto-serotherapy and Serotherapy. — When pleurisy develops thoracentesis is performed and 100-200 c.c. of the exudate is injected subcutaneously, and the injections repeated daily using the exudate removed each time thoracentesis is carried out (auto-serotherapy).

When the serum is available I inject all cases of the disease in hospital with 50 c.c. of the exudate in place of carbolic solution (serotherapy).

In cases which have developed pleuro-pneumonia as many as eight injections have been administered, but three are usually sufficient until the temperature drops to normal (auto-serotherapy and serotherapy).

Thoracentesis is performed in all cases as soon as there is evidence of fluid, generally about the seventh day after admission to hospital and repeated as often as found necessary, removing as much fluid as possible at each " tapping."

When there are other cases under treatment 400-600 c.c. of the

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pleuritic exudate after a " tapping " is preserved by adding 10 c.c. of carbolic acid solution 5% to every 90 c.c. of the fluid, stirred up and kept for two or three days ; but when more exudate is obtainable the previous days is discharged and similarly treated as above. As a rule I perform thoracentesis on the following day.

When cord-like masses of fibrin are present the exudate is allowed to settle before injecting.

There is an improvement and as a rule the temperature drops to normal after the third injection.

Counter-irritation to the chest walls is not resorted to.

The colour of the pleural effusion varies in the different cases—pale yellow, yellow with a reddish tinge, brownish, dark brown, and in one case it was of a decided greenish hue.

All the pneumonia cases are treated with 2½% carbolic solution in one pint normal saline solution, the dose is increased daily by 10 c.c. until improvement sets in and the temperature becomes normal.

I have not been afforded the opportunity of giving salvarsan or neosalvarsan a trial.

Continental workers say that with these drugs there is a marked rise of temperature from the third to the ninth hour—two degrees or more—and then a sudden lysis occurs, after which the patient seems to be restored to health very quickly.

The dose recommended is .01 gramme per kilogram body weight.

Some workers say that the bactericidal action of salvarsan lasts for only a short time, and reaches its maximum about one hour after injection and that the animal loses condition after the use of the drug.

REFERENCES.

(1) Miessner H., " Epizootics and their control during War," 1917.
(2) Hutyra and Marek, " Pathology and Therapeutics of Diseases of the Domesticated Animals," Vol. I, 1926.
(3) Hoare, E. Wallis, " A System of Veterinary Medicine," Vol. I, 1915.
(4) Law, J., *Veterinary Medicaire*, Vol. IV, 1906.
(5) Malkmus, Dr. (Hanover), " Contagious Equine Pneumonia," *Journal Comp. Path. and Therap.*, Vol. XXII, No. 2, 1909.
(6) Webb, E. C., " Bi-polar Staining bacilli of the Fowl-cholrea type as the cause of widespread and fatai Pneumonia in Horse and Donkey Stock in India," *Journal Comp. Path. and Therap.*, Vol. XXII, No. 2, June 30th, 1909.
(7) Vechine, Al., " Equine Influenza (pink-eye)," *Journal Comp. Path. and Therap.*, Vol. XI, Part 8, September, 1927.
(8) Greig, " Serum treatment of Shipping-Fever and Pneumonia." British Remount Commission in America, *Veterinary Record*, 15th July, 1922.
(9) Lentz, W. J., " An Experience with different treatments for ' Shipping-Fever ' in a Sales Stable," *Journal American Vety. Med. Assoc.*, Vol. LI, May, 1927.
(10) Edwards, J. T., Review of subject. Verbatim notes and comments taken and recorded by me at Post-Graduate Course Imp. Lab. of Vety. Research, Muktesar, India, 1928.

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Tuberculosis as Meant by the Tuberculosis Order.

By T. W. HUGHES, M.R.C.V.S.,

Mold.

TUBERCULOSIS due to emaciation is sometimes difficult to detect. In my opinion the symptoms vary quite considerably and sometimes there is very little to go on except the wasting and the history of the case, which is most important. Rectal examinations are useful as are also auscultation sounds, but these latter need careful interpretation and summing up. Enlarged lymphatic glands aid diagnosis along with the other symptoms. In many cases a cough is not present, and most of the lesions are found in the abdominal cavity. When Jöhnes disease and tuberculosis exist in one and the same cow differentiation is difficult ; I have had such cases. A lot of judgment is necessary to know if some of these reported *emaciation cases* are tuberculous as meant under the order. The thin cow with intermittent tympany is nearly always tuberculous and on *post-mortem* one finds enlarged uredrastinal and bronchial glands in these cases.

The microscope is the best method of diagnosing cases of chronic cough. Get a sample of sputum and examine it in the usual way. The microscope is invaluable for this and also for milk and glandular discharges. Doing your own examinations saves a lot of time and does away with a lot of guesswork.

Milk and Udder Cases.

If you can feel something clinically wrong with an udder you can always tell if you are dealing with tuberculous infection with the aid of a microscope. Centrifuge your sample well and stain in the usual way. Do not let one examination suffice if you are doubtful clinically. If you fail to find the bacilli with the microscope, it is necessary to have a biological test.

I have only once had a positive result from the laboratory when I have failed to detect the bacilli with the microscope and I have submitted some thirty-eight samples to laboratories at the request of the Local Authority.

Six Calves at a Birth.

By E. J. LAINÉ, M.R.C.V.S.,

Guernsey.

SIX calves, 3 male and 3 female were born to a cow in Alderney. The cow was named " Honeydew " and was in the Royal Alderney

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Agricultural Society's Herd Book. She was 6 years old and calving for the third time. She belonged to Mr. Blondin, Little St. Alderney.

The cow was of very great size and had much difficulty in walking. She calved down at seven months, the calves being of normal size for this period.

Foreign Bodies in the Abomasum in Merino Sheep.

By R. PAINE, F.R.C.V.S.,

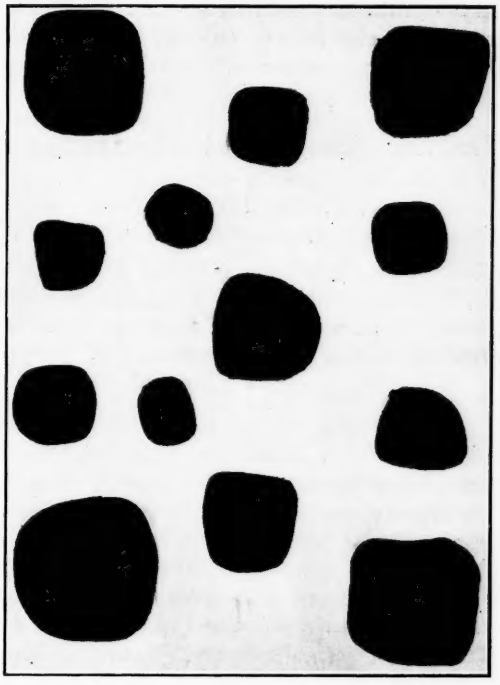
Grahamstown, Cape Province, S. Africa.

A FARMER complained that a number of his sheep were gradually losing condition, finally becoming so emaciated that they either died or had to be destroyed, that upon *post-mortem* examination the only abnormality was a number of foreign bodies in the fourth stomach.

The sheep were young full mouth grade cape and merino cross, reared on the farm, and within a few months eleven had died in a flock of three hundred.

Two sheep were sent to the Institute for observation purposes, one being *in extremis* was destroyed at once, and *post-mortem* examination revealed five bodies in the abomasum (ranging from 1½ inches square downwards) in a line directed towards the pylorus so as to cause actual obstruction, otherwise the organs were normal. The second sheep was

kept under observation for a further 16 days, and as it became gradually weaker it was destroyed, the examination revealed twelve similar squarish shaped bodies weighing 225 grammes (see photograph).



Foreign bodies taken from the abomasums of Merino Sheep.

A month later I visited the farm and opened a lamb which had died during the night, four similar bodies were present ; the herd then picked out two other sheep which he suspected of the same trouble, one was killed and revealed 17 bodies in the abomasum.

The Botanical Division of Rhodes University College very kindly reported upon the specimens, that they were of a vegetable nature, showing a cellulose reaction ; no hair or animal material was present, nor could any nucleus be detected.

The veld appeared to be ordinary karro, and no strong clue could be obtained as to the causation, but a suspicion was raised by the fact that the sheep were receiving a lick containing large pieces of uncrushed sulphate of iron. Whether this drug in that state caused

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impaired digestion, or whether it was a constitutional defect in the sheep could not be ascertained.

A large proportion of the young stock being apparently affected, and no curative treatment being possible, it seemed to be the soundest advice to dispose of the flock and restock with a new strain. Possibly some other observers may have encountered a similar condition and can throw some light on the question.

Intra-Thoracic Œsophageal Obstruction in the Dog.

By J. G. WRIGHT, F.R.C.V.S.,
Royal Veterinary College, London.

In October last year in a paper presented to the Mid Wales and South Wales Veterinary Association, I described several cases of Œsophageal obstruction in the dog; and during the last few months several more cases have come to my notice.

Case 1.

A nine months Cocker Spaniel male. The symptoms, which were as follows, are typical and are quite diagnostic of œsophageal obstruction in the thorax. The animal is hungry and will take food readily. Having swallowed a few pieces of meat, it is at once obviously distressed. He gulps and swallows saliva, arches his neck and draws the chin towards the sternum; in fact, shows that despite the fact that the meat has disappeared, it has not reached the stomach. This goes on for a period of 1 or 2 minutes (often longer, especially if the obstruction is of some days duration) and then vomition occurs, the meat being returned. Vomition causes the animal considerable distress, and if the obstruction is due to a sharp body, frequently blood is returned as the result of laceration of the œsophagus.

Liquid will frequently pass the obstruction and is retained.

To confirm one's diagnosis X-ray photography may be resorted to. Results, however, may be disappointing. The foreign body, usually a piece of bone, may be cancellated tissue, in which case little or no shadow will be formed. Such was the case in the animal under discussion. No definite shadow could be seen.

The animal was narcotised with one grain of morphine sulphate and the probang carefully passed. One was unable to get beyond the fourth rib, and a diagnosis was made that the œsophagus was obstructed by a piece of cancellated bone immediately over the heart.

It was decided to perform œsophagotomy immediately anterior to the presternal cartilage and to endeavour, by passing a pair of

narrow jawed whelping forceps along the œsophagus into the chest, to grasp the offending article and withdraw it.

Operation.

The animal is anæstheticised with chloroform and placed in the dorsal position with head and neck extended. Having prepared the site an incision $1\frac{1}{2}''$ long is made in the middle line immediately in front of the presternal cartilage, through the skin and subcutaneous fat, immediately beneath lies the sterno-thyro-hyoideus, through which the incision is continued and the trachea exposed. The œsophagus is on the spinal aspect of the trachea and slightly to the left side. Into it a probang is passed, *via* the mouth, and then by palpation it can easily be recognised by a finger in the incision. The œsophagus is raised by means of a tenaculum and drawn into the operation wound. It is incised longitudinally.

By passing the index finger into this incision and along the œsophagus, the foreign body can be felt immediately over the heart and from 3—$3\frac{1}{2}''$ behind the first pair of ribs.

The forceps are next introduced and, with considerable difficulty, the foreign body is grasped and drawn forward and removed.

The œsophageal, muscular and skin incisions are left open and for a few days a fistula occurs, milk which is swallowed passing out through it. Suppuration occurs for 2—3 days after which granulation rapidly occurs and healing is complete in about fourteen days.

The piece of bone (part of a sheep's vertebræ column) was jagged and irregular, its dimensions being $1\frac{1}{4}'' \times \frac{3}{4}'' \times \frac{1}{2}''$

Case 2.

A few days ago a 9 years old miniature cairn bitch was admitted to the College, showing symptoms identical with those previously described. An X-ray photograph showed quite plainly a foreign body obstructed in the œsophagus immediately over the heart and between the third and fourth ribs.

Vomition caused the ejection of a considerable quantity of blood and prognosis was therefore guarded.

Morph. gr. 1/6 was given subcutaneously ; the little bitch, however, died before the operation was commenced.

The operation, as previously described, was carried out as a demonstration to the students and the foreign body removed. Again a jagged piece of vertebral column, but the bone was more compact than in the previous case.

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Discussion.

Practitioners must be constantly coming in contact with cases such as these, and as the great majority of them prove fatal I would suggest that something on these lines be carried out. I have seen a case in which a piece of bone was returned during vomition after having been obstructed in the œsophagus for fourteen days.

The subcutaneous injection of atropine (gr. 1/200—1/100) suggests itself with a view to causing relaxation of the œsophagus and this, together with the packing of some meat or other solid substance in front of the obstruction, might facilitate its vomition. At any rate, it is most probable that it would render its removal by forceps more simple.

I feel that in the second case described the vomition caused by the morphine was probably a contributory cause of the bitch's death, and think it would be better to use chloroform alone, in future.

A Curious Accident.

By R. E. ALEXANDER, M.R.C.V.S.,
Weymouth.

I WAS called in to see a half-bred Persian cat that had given birth to five kittens on the previous night. I was told that the cat's front paw on the near side had swollen to twice the natural size.

On examination, I found two normal kittens sucking milk from the mother, and three other kittens united by a very tough, common umbilical cord, twisted tightly round the parental foreleg.

The cord was buried deeply into the skin, causing the paw to swell enormously, and the kittens were fighting desperately to reach the milk depot, much to the discomfort of the unfortunate mother.

On cutting the cord, the cat had a luxurious stretch in the way that only felines can, and hobbled away with obvious relief, leaving me to separate the rest of the family. I ordered hot applications to be applied frequently to the foot, as in my experience gangrene starts more easily in the cat than any other animal.

Salt Poisoning in Fowls.

By G. MAYALL, M.R.C.V.S.

A MAIDSERVANT at a country cottage gave two pounds of salted runner beans (which had been cut up and preserved in salt in the usual

way) in the mash for the fowls. Within thirty-six hours twenty-four of the fowls were dead. The owner tasted the mash and states that it was just like brine itself. The fowls were given the mash in the morning and also fresh water. In the afternoon at 5 p.m. all the fowls were sitting round the water trough and passing green liquid motions. The water trough was quite empty, which was most unusual. Some fresh water was given and all the fowls that were able went for it ravenously, but there were fifteen that could not move at all, but just sat there as if on the nest. Their combs were very red, and crops much inflated (tympanitic). The fifteen were lifted into the cote, but one died at 6 p.m. the same night, and next morning nineteen were dead, and the following night four more died. They seemed paralysed, and drew their feet up and kept moving their heads about. Ten birds recovered after dosing with olive oil and arrowroot and milk.

Post-mortem showed intense redness and dryness of the muscular tissues, inflammation of the proventriculus and intestines, thickening of the blood, œdema of the lungs and congestion of the liver. A solution of the crop and gizzard contents gave a white precipitate with silver nitrate soluble in ammonium hydrate.

The fatal dose of salt is 4 to 4¼ grammes of salt per kilogram of fowl. If it has access to water it can survive a bigger dose. Salt produces its injurious effect by abstraction of water from the tissues and by its irritating and inflammatory action on the mucosa of the digestive tube and its nerve paralysing poison. (DR. R. REINHARDT.).

Abstracts

University of London.

Abstract from the Report of the Principal on the Work of the University during the Year 1928-29.

EXAMINATIONS AND ADMISSIONS TO THE UNIVERSITY.

The statistics for the year under review are as follows :—The total admissions by all channels during 1928-29 amounted to 9,708, as compared with 3,852 in the last year before the War and 9,119 in 1927. Of these, 7,082 came in through the ordinary Matriculation Examination, 453 as graduates of other Universities, 1,147 as holders of the Oxford or the Cambridge School Examination Certificate, 767 as holders of other approved Certificates, and 259 after examination

under Statute 116. The total number of candidates for all Examinations was 34,941, as against 11,937 in 1913 and 33,903 last year. The total number of successful candidates at all Examinations was 15,186, and of those who obtained Degrees and Diplomas 3,089, as compared respectively with 6,343 and 1,301 fifteen years ago and 14,102 and 3,030 last year.

Benefactions.

The grants from the Treasury and from the London County Council have been maintained. In addition, the Treasury have made special grants of £9,000 to the Imperial College for the extension of the Students' Union building and of £10,000 to the London School of Economics for the provision of further accommodation for the Library. That School has also received from the London County Council an equipment grant of £5,000 in respect of the building in Houghton Street and of the extension of the present School building.

Apart from the support given to us by public authorities we have received during the year valuable benefactions from other sources. The Cassel Trustees have extended for a further period of five years their grant of £800 a year for the maintenance of the University Chair of International Relations at the London School of Economics. The Incorporated Institute of British Decorators have guaranteed, for a period of three years in the first instance, the salary of a Lecturer in Decoration in connection with the Bartlett School of Architecture at University College. For the establishment at that College of a Scholarship for training in Physiology and Biochemistry the Senate have accepted with thanks the offer of a sum of £2,600 raised by the Committee of the Bayliss-Starling Memorial Fund.

Nearer home, one other item must not pass unnoticed. For the first time, excluding, of course, the War period, the strength of our Officers Training Corps has reached the thousand mark. This is a matter for congratulation to all concerned and not least, I think, to the Officer Commanding the Corps, who, in the more peaceful paths of academic life, is not unknown to us as Prof. Filon and to whose activities has now been added the Directorship of the new University Observatory at Mill Hill Park. The Observatory, in which is housed the Wilson Telescope, will shortly be opened formally.

Last year I brought this section of my Report to a close with a reference to the medical education of women undergraduates in the University and I mentioned that a Committee of the Senate had already been set up to report on the question. The Committee held

eleven meetings, interviewed representatives of the Medical Schools and others interested, collected a great body of material bearing on the subject, and, in January of this year, made their Report to the Senate. The Committee, while setting out the various difficulties and problems which had been put to them, stated that they were unable to see any valid argument on the merits against the provision of co-education in medicine. The Report has been published and, though I need not therefore go into any detail here, I feel that I may appropriately quote its concluding paragraph. This reads as follows:—"Co-education, if it is to succeed, must be voluntary. Before the "War the tradition or policy of the Medical Schools was opposed to "co-education, and its introduction during the War was due to the "initiative of the Schools, though it was welcomed by the University "as being in accordance with its own policy. Its restoration can, we "are convinced, only come about by an agreement between the "University and the Schools and possibly by an arrangement by which "the several Schools would agree to a certain quota of women stu-"dents." The Senate, in approving the Committee's Report, asked the Vice-Chancellor to invite the Medical Schools, to whom it was communicated, to consider the possibility of admitting a quota of women students as a means of giving effect to the policy of the University as set out in the Report.

To what extent it may be possible to allow for Hostel accommodation on the Bloomsbury Site is a matter which has not yet been decided, but meanwhile, for individual cases, a policy of giving preference to teachers and students of the University by adapting houses to their requirements has been both approved and put into execution. I am betraying no secrets when I say that the Committee of the Senate dealing with the Bloomsbury Estate as a whole has, under the Chairmanship of Sir William Beveridge, done a very great deal of work during the year on the general question of accommodation on the Site. On the recommendation of that Committee four purposes, namely, an Administrative Block, the Library, a Great Hall, and provision for the Union Society, to which I have already referred, have been definitely approved by the Senate for inclusion in any general architectural plan.

Exportation of Horses*.

DURING the year 1927 10,066 horses were shipped from Great Britain to the Continent of Europe after having passed the veterinary

* Abstract from the Annual Report of Proceedings under the Diseases of Animals Acts for the year 1927.

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examination required by the Diseases of Animals Act of 1910, as amended by the Exportation of Horses Act of 1914. In addition, 1,360 horses which were presented for examination before shipment were rejected. The standard of fitness required by these Acts in respect of every horse passed for shipment, is that it must be fit to be conveyed and disembarked without cruelty and capable of being worked without suffering. The following statement shows the number shipped at each port and their destination :—

Port of Shipment.	Belgium.	Holland.	France.	Other Countries.	Total.
Folkestone	—	—	2,281	—	2,281
Goole	774	681	—	76	1,531
Harwich	1,258	244	—	130	1,632
Hull	65	287	—	89	441
Leith	3	1,327	13	81	1,424
London	98	2,498	36	17	2,649
Southampton ..	—	—	96	12	108
	2,198	5,037	2,426	405	10,066

In all only eight casualties occurred amongst the animals shipped to the Continent. Of these one was slaughtered and seven died—they were distributed amongst seven different voyages. The continued small number of casualties in this traffic is very satisfactory.

The following table shows the number of carcases and number of live horses exported to the Continent of Europe from the years 1920 to 1927. No statistics of carcases exported were kept prior to 1920 :—

Year.	Total Number of Carcases Exported (approx.).	Number of Live Horses Exported.	Total (Horses and Carcases).
1920	15,972	58,689	74,661
1921	24,918	45,120	70,038
1922	38,739	17,941	56,680
1923	53,928	17,067	70,995
1924	61,602	25,645	87,247
1925	64,357	13,477	77,834
1926	46,483	7,356	53,839
1927	48,662	10,066	58,728

The figures for 1922 to 1924 in Columns 2 and 4 of the above statement differ from the corresponding figures contained in previous Annual Reports, as they have been adjusted from revised returns received from the countries to which the carcases were exported.

It will be seen that there was a small increase in the number, both of carcases and live horses, exported during the year as compared with the year 1926.

On November 7th, 1927, an Order was issued by the Ministry amending in certain respects the Exportation and Transit of Horses, Asses and Mules Order of 1921, which is the Order governing the export of horses to the Continent. The most important requirement of the Amending Order is that which makes it an offence to carry horses, asses or mules from a port in Great Britain on any voyage when in the judgment of the master of the vessel, there are reasonable grounds for anticipating that, owing to adverse weather conditions the voyage would be attended by serious injury or suffering to or loss of life amongst the animals.

Cancer of the Right Testicle in a Mule. (Tumour of the Interstitial Cells.)*

By DR. D. BALL and PROFESSOR DOUVILLE.

EXCEPTIONAL in man, tumour of the interstitial cells is equally rare in animals. Described for the first time in human pathology by Chevassu (1906), then by Kauffmann Dürck, P. Masson, this tumour has been observed both in the ectopic and descended testicle.

In comparative pathology the first work on this tumour is due to one of us (M. Ball)† who in 1922 published two cases in the dog, and who, since this period, has been able to study a third case in this animal, observed by M. Revillon, veterinary surgeon in Lyons. These three cases of tumour of the interstitial cells have been in the descended testicle.

We publish to-day the first case of tumour of the interstitial cells in a mule.

The patient, 15 years old, showed a general satisfactory condition. The right testicle was very large. On palpation the surface of the

* *Revue Vétérinaire*, Sept., 1926.

† Ball: "Two Cases of Tumour of the Interstitial Gland of the Testicle in the Dog," *Bull assoc. fr. pour l'étude du Cancer*, 1922.

gland appeared dented, and its consistence firm. The corresponding testicular cord was normal. The growth in volume of the testicle had been observed for about six months. This growth had been progressive and, a curious detail, we have noticed volumetric variations of the affected testicle, following work, variations which seemed allied to transient phenomena of congestion and œdema. Rectal exploration made with a view of discovering secondary neoplastic adenopathy of the pelvian and subhunbar regions remained negative. Diagnosis of cancer of the right testicle being made, castration was practised on May 7th, 1925. After healing, the subject left the infirmary and has not returned. The cancerous testicle had visibly preserved its general shape, although slightly elongated. On the surface of the gland voluminous and sinuous veins could be seen. The organ weighed 5 lb., measured 4½ in. long, 3 in. wide, and 2¼ in. thick ; its consistence was firm and elastic. On longitudinal and median section there was no trace of testicular parenchyma. The surfaces of section showed lobulated structure. The general colour was greyish-yellow, but certain neoplastic lobules showed light maroon or violet colour where hæmorrhages had taken place. The lobules of rounded form, elongated or polyhedral, measured several centimetres in diameter and were separated by a conjunctive stroma reduced to a greyish colour. Each of these large lobules consisted really of several smaller lobules. Examined under low power the histological sections of the tumour showed a curious liver-like aspect, as noted in man in a case studied by Kauffmann.

The tumoral tissue was composed of species of neoplastic lobules badly defined and separated by a little developed conjunctive stroma. The neoplastic cells which constituted them were heaped up without order or disposed in rows and anastomosed bays, and separated in places by numerous blood vessels. These cells were voluminous, polygonal or sometimes slightly elongated, with dark protoplasm, very acidophile, coloured deep rose by eosin, sometimes vacuolar, with pigmentary ochre granulations. The nucleus of the cells was rounded and more or less excentric.

These cells, therefore, recall *the interstitial cells* of the normal testicle. They were differentiated from *seminoma*, the most frequent tumour of the testicle, by their greater volume and deeper colourability. The neoplastic cells are sometimes arranged as a rosette or circular palisade around blood vessels. In this case they are stretched, cylindrical or in racket form.

In all the cases observed in animals there was no glandular or visceral metastasis.

Ascaridia Encrusted in the Shell of a Hen's Egg.*

By M. HENRY.

I HAVE the honour of presenting to the Academy a very curious egg, of which the shell presents on its surface, and in relief, an ascaridia which is found encrusted at the time of calcareous deposition in the shell cavity.

It is not rare to observe the presence of parasites in the interior of hen eggs. They come from the intestine or cloaca and ascend more or less far into the oviduct, whether by their own movements or by the contraction of the wall of the uterus.

Ascaridia are among the parasites most frequently met with in these conditions. They always strike the popular imagination and are often compared to small serpents. But it is much more rare to find ascaridia encrusted in the calcareous wall; that is why I am presenting this curious egg which will be deposited in the Museum of the Alfort School.

I must remark that the anterior extremity of the worm probably least solid, is wanting for a length of about 15 millimetres, but one finds traces of its insertion. On the other hand a small breach has been made at one place which makes the cuticle of the worm appear and furnishes undoubtable proof of the origin of the ornamentation.

History records five similar and almost identical observations: Aldrovande (1642), de Cleyer (1682), Monti (1757), which three for a long time have been considered as pure phantasies—that in the Turin Museum and that of Pavesi (1893).

Annual Report of the Surgeon-General, U.S. Army, 1928.

MAJOR-GENERAL M. W. IRELAND, the Surgeon-General of the United States Army, makes his report to the Secretary of War. It is a comprehensive production of 391 pages, dealing with the health and diseases of the army, the medical schools, general hospitals and particular activities, corps area, overseas, miscellaneous. The mean annual strength of officers was 11,566, and of the white enlisted men for the total army, 108,989. The coloured troops who served overseas was 3,898, the Filipinos numbered 6,869, and the Porto Ricaus 1,579. The mean annual strength of the total army, excluding nurses, was

* *Bulletin de l'Académie Vétérinaire de France.* May 1928.

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132,901. Colonel W. G. Turner, V.C., is the chief of the Veterinary Division. The average number of animals in the service of the army was 40,433, the average number of veterinary officers 102, and the number of animals under the care of each officer, 396. The Veterinary Bulletin is published monthly, and is a means whereby officers may report interesting cases and comment be made on matters of general interest. One hundred and one original articles have been written by officers of the Veterinary Corps. As regards organised reserves, there were 1,067 officers in the Veterinary Reserve Corps. Instruction and training are provided for in the Army Veterinary School and Medical Service School, and other special schools and institutes. It is stated that at the present time it is almost impossible to enlist a horseshoer that has had experience, and the army must train its own. The Veterinary Corps is responsible for the competent and thorough inspection of all foods of animal origin intended for army use. An inspection of all forage is also carried out. Quite an appreciable amount of material is returned or condemned in both categories. A number of remounts are purchased annually, and up to December 31st, 1927, 14,886 had been bought, and the total loss from all causes was 1,555.

The greatest need of the Veterinary Service at this time is adequate hospitals of a permanent type of construction, the present ones consisting solely of those made from salvaged material.

The chief communicable diseases were tinea, influenza, strangles, and epizootic lymphangitis. There was no case of surra, and only five cases of glanders which developed in the horses of the National Guard at a small out-station.

Epithelioma of the Perineal Glands in the Dog.*

By M. DUPAS, *Fourth-Year Student at Alfort.*

In a memoir entitled, " Cancer in the Domestic Animals—Original Researches."

(1) Professor Ball, of the Lyons School, has devoted a chapter to epithelium as of this kind in which he described three personal observations and gives anatomo-pathologic details; he classes them among cancers of the baso-sebaceous type and recognises two varieties (1) of typical adeno-epithelioma form and (2) an atypical or meta-typical variety.

* *Recueil de Méd. Vétérinaire. Aug.*, 1928.

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We have had the opportunity of observing a case whilst assisting Professor Coquot. It was of the metatypical or atypical variety in a mongrel dog of large size 13 years old.

This animal was brought into the Alfort clinic on April 19th last and showed around the anus a series of tumours of varied size, well defined, of which the most important one was situated between the superior anal commissure and the base of the tail, appeared much more developed than its neighbours, and plainly pedunculated; a second rather less in size was immediately contiguous to it on the left. Three others of less size were disposed laterally to the sphincter.

Finally, a last one, isolated and the size of a pea, deformed the inferior profile of the caudal appendage some ten centimetres from its base.

The principal tumour was pear-shaped, about 100 grammes in weight, hanging over the perimeal region; its surface was umbilicated, irregular, shallow, ulcerous; ulcers badly defined, from which escaped bad smelling discharge. No other lesions on the tumours.

The age of the dog, the large size of the neoplasms, the umbilications and ulcerations pointed to cancer; but it was noticed that the animal was lively, in good condition and even fat.

The patient was left in hospital. On April 21st we operated on the two upper tumours and removed them, reserving the ablation of the others until later on, except the caudal metastasis, which was ligatured with silk. The operation wound, wide and deep, healed up in three weeks without leaving any residue except a little nodule ascertainable on careful palpation; as for the caudal metastasis, it disappeared and withered away in a few days.

A month after the first operation the accessory nodules have increased and developed to the size of a pigeon's egg and show discharging ulcerations. We removed them on June 2nd. The fresh surgical wound healed up normally. After 15 days the region is clean, the scars hardly visible and the dog is returned to the owner: prognosis is not hopeful, evidently almost certain to be a relapse and probably a more or less early generalisation.

Anatomo Pathologic Study.

With the naked eye, the neoplastic tissue examined in the fresh state was a brownish yellow colour, of shiny and translucid appearance and firm consistence. The sectioned surface is irregularly lobulated and here and there one notices cavities of necrotic or pseudo-cyctic origin.

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Histological examination after staining with hematin-eosin showed a structure quite comparable to that described by Professor Ball in his important memoir that we consulted.

We distinguished important glandular or pseudo-glandular lobules of medium size, rounded or quite irregular and atypical, sometimes widely anastomosed and separated by a quite discrete conjunctivo-vascular frame work.

These epitheliomatous areas, viewed at 300 diameters, showed formed epithelial clearly polyhedric, more voluminous than those of normal perineal glands. The limits of these cells are difficult to see, so many being serrated and fused together. We found, irregularly divided, more or less numerous "microcysts" (M.K.), which seemed to spring from sebacerus cells become cavitous and as a result looked like unicellular cysts. Certain of these epithelial cells, in a more or less advanced stage showed a reticular or vacuolar protoplasm (C.R.V.).

Finally, at the periphery and in the epitheliomatous lobules one could distinguish generic cells identical with those of the baso-cellular epitheliomas (C.G.). A conjunctive stroma, little developed, separated voluminous blood vessels; we have called it, lobular formations (C.C. and V.). Colouring with Soudan III, an excellent fat reagent, showed numerous little foci coloured intense brick red, revealing the indisputable sebaceous nature of this cancer.

This was a cancer of the type already described by Professor Ball and mentioned by Jacger. It is rare and has been little studied.

Six Years of Prophylaxis of Bovine Tuberculosis with B.C.G. in an Infected Holding (1922-1928).*

By M. P. BRINET,

Veterinary Surgeon at Magny-in-Vexin (Seine et Oise).

THIS account refers to a large holding situated at a place called "Le Boulleaume," belonging to M. de CH——. The herd comprised 80 head, 40 of which were milk producers for Paris. The sheds were of old construction, practically non-disinfectable, but very well kept. The great cultural extent of the farm necessitated careful book-keeping, state supervision and records of the movement of animals.

Recueil de Médecine, Vétérinaire, March, 1929, Torne C.V.

From this register it was noted that Nocard made a general test with tuberculin in 1895. One cowhouse gave 89 per cent. of positive reactions, another 100 per cent., the smallest 40 to 60 per cent. Since this period tuberculosis has always been prevalent on the holding. Every year an average of 5 or 6 partial or total seizures have been made on slaughter of the animals at the end of their economic career.

In Jan., 1922, the owner expressed a desire that in view of the likelihood of the young calves being infected with tuberculosis from the surroundings, that they should be dealt with.

In 1922, vaccination by the intravenous method was carried out and on Jan. 1st, 1923, subcutaneous inoculation was commenced. The procedure was carried out as far as possible in the first fifteen days of life ; but in the course of the first years of vaccination this rule has not been always strictly followed ; in a few animals vaccinal inoculation has only been made in the first month after birth.

The mode of procedure has been complete isolation of the calf from birth, with sojourn of all of them together in a common shed, bucket feeding at first with raw milk from the mother, followed by mixed milk of the whole of the herd. Annual re-vaccination has been performed regularly in Feb. of each year. Up to Jan. 1st, 1928, 300 animals have been vaccinated and re-vaccinated in the course of these 6 years, without incident. Two cold abscesses formed at the point of the inoculation of B.C.G., opened themselves spontaneously, evacuated and closed without any trouble.

In the same space of time 10 animals have died or been slaughtered because of the malady. It is to be noted, after, that one only of these bovines, a bad-doer from birth, slaughtered at the age of one year for emaciation, was affected with generalised tuberculosis. Should this unfortunate case be put down to a tardy vaccination (a month after birth), or to massive infection, since birth, by a very infective maternal milk ? It is impossible to prove either of these hypotheses.

On the other hand since the first of Jan., 1926, 35 animals 4 years old at least, arrived at the finish of their career and have been sent to the abattoir, none have been seized or even declared tuberculous ; 13 other cows, pregnant or recently calved, have been sold as " Parisians," that is to say, have passed into the dairies of Paris or its suburbs. One only having reacted to tuberculin has been taken back by the owner. This animal, in a perfect state, has been resold the following year, without the new buyer making any reclaim.

The scientific controversies relative to the B.C.G. which for several months have occupied the tribune of our learned societies are certainly

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of the greatest interest ; but we practitioners cannot follow the savants on their terrain. We must content ourselves with the interpretation of facts which we are called to establish and the practical lessons which we derive from them.

The owner of the holding recently stated to me : " Since my animals are vaccinated and re-vaccinated against tuberculosis we have no longer to register seizures for this cause in the abattoirs ; from this fact the ' Profit and Loss ' account of the balance sheet of my holding is favourably impressed."

It must not be forgotten that the prophylaxis of contagious diseases of cattle is above all a step in rural economy. All progress in this direction ought to be marked with a white stone and this will be the conclusion of this six years' experience, gathered and reported in all simplicity.

Abstracts of Current Literature

Geibel.—A Case of Thuja Poisoning.—*Zeitschrift f Veterinärkunde*, Vol. 40, No. 6.

An eighteen year old draught horse during a short pause at work ate some twigs of *Thuja occidentalis*. One to two hours after stabling he staggered and ate nothing. Next morning he stood apathetically in the stall ; temperature 102 2/5 ; breathing quiet, pulse weak, 90 per minute ; conjunctivæ blanched. Sensibility in the region of the left quarter was diminished and in the right extinct ; the area round the arms was anæstheticised. The dung, badly balled, was coated with glistening slime and was passed in usual quantity. In leading out the horse progressed diagonally and staggered considerably. He sank down in the hind quarters. Food was not taken and only a little water.

Treatment. Mucilaginous diet, laxatives, cardiac stimulants. Little improvement in appetite for four days. Temperature 102 4/5 ; pulse 75. In the course of a week he lost the anæsthesia and the staggering gait. After fourteen days he had recovered.

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Winterberger, J.—A Case of Antimony Poisoning in a Cow.—*Wien. Tierarzt Monatsschrift.* Vol. 15, No. 10; pp. 464-465.

A cow seven months in calf was given repeated doses of antimony tartrate for stoppage by a quack and as it was suffering from antimony poisoning it had to be slaughtered.

Clinical Symptoms. Respirations 50, pounding heart beats, irregular and intermittent, temperature 103, rumination suppressed, lively movements of calf, trembling, colic, collapse, exhaustion.

Post-mortem. Intestinal mucosa pale yellow, fatty degeneration of the liver, in the kidneys large clear spots, hæmorrhages into the peritoneum and mesentery, œdema of the lungs, heart muscle soft and yellow tinged, hæmorrhages under the epi and endocardium.

News

Sheep Dipping Film Demonstration at the Royal Veterinary College.

On the 22nd of March an interesting demonstration before a very appreciative audience of students, and others, was given in the large Lecture Theatre of the Royal Veterinary College, Camden Town, through the courtesy of The Cooper Technical Bureau, in the form of a cinematographic film exhibiting many of the aspects of parasitic infections in sheep and cattle.

The incidents depicted in the film had been photographed in many parts of the world—Great Britain, the Argentine, South Africa and Australia. The subjects included such external parasites as ox warble, psoroptic scabies of sheep, liver fluke in sheep and stomach worm infection in sheep. Various methods of dipping sheep and cattle as practised in the various countries were well illustrated. Particular interest attached to a circular type of dipping bath with a central island which is extensively used in South Africa. This type of bath possesses the advantages of a long swim bath in small compass and facilitates control of the animals in the course of dipping.

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The concluding portion of the film showed some interesting topical pictures of mustering and shearing of large merino flocks in Australia. At the conclusion of the film exhibit Dr. L. E. Robinson, the Chief Biologist of the Cooper Technical Bureau gave a short account of recent developments in knowledge relating to liver fluke infection and its treatment in sheep and sheep scab. He laid particular emphasis on the incidence of a definite latent period in the activity of sheep scab in the summer months, and expressed the opinion that recognition of this latency was a matter of some importance in connexion with preventive and curative measures.

In the discussion that followed, Professor Douglas Stewart, Dean of the Faculty of Veterinary Science, University of Sydney, and Mr. Walter Prudames, M.R.C.V.S., gave short addresses.

Review

Geburtshilfe bei den Kleinere Haustieren. 2nd edition. By Dr. KARL KELLER, Professor at the Veterinary School in Vienna. Berlin N24 and Vienna: Urban & Schwarzenberg. Pp. 233, 63 figs. in the text, and a coloured plate. Price 12 marks; bound, 14·40 marks.

THIS is one of the sections in manual form of Dr. Eugen Fröhner's and Dr. Theodore Schmidt's "Veterinary Surgery and Obstetrics." The obstetrics of the smaller animals is a domain in itself, and the author has received the assistance of two such experts as Dr. Franz Benesch and Dr. Paul Schindler in the preparation of his work. He also acknowledges the help that De Bruins labours earlier on in the same field, has afforded him. Parturition in small ruminants, swine and carnivora is dealt with. Obstetric anatomy, physiology, normal and abnormal pregnancy and parturition, birth hindrances, parturition interferences and operations, sequelæ, and the pathology of the puerperium are all fully discussed. The coloured plate illustrates a perforating ulcer of the uterus in the bitch. As is usual with the veterinary surgeons of Central Europe, these authors state their preference for the flank operation in Cæsarean section over that by the linea alba. From 1906 to 1926 on 337 cases operated on by *sectio cæsarea conservativa* they had 292 recoveries or 87 per cent. In hysterectomy, *according to Porro*, in the same period out of 238 cases they had 145 recoveries or 61 per cent. The manual is a welcome addition to the literature of obstetrics in the smaller animals.

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Correspondence

Abortion in Bitches.

The Editor, THE VETERINARY JOURNAL, *London*.

DEAR SIR,—

Would you allow me a little space to ask if any members of the profession would let me have details of any cases of the above that they have encountered during recent years. I should especially like to hear of anything in the nature of an epidemic or what may have appeared to have been contagious abortion in kennels. Also I shall be glad to receive data concerning excessive puppy mortality in breeding establishments, and indurating mammitis in freshly whelped bitches. I am especially interested in those cases that have occurred amongst foxhounds, and if bacteriological examinations have been carried out I should be glad to hear the results.

Yours faithfully,

J. V. S. RUTTER, M.R.C.V.S.,

Gwynne House, Hereford.

Personal

More than an ordinary word of thanks is due to Mr. Herbert Buckingham, of Norwich, for the splendid effort which he has made amongst his clients and friends on behalf of the Rebuilding Fund of his Alma Mater, the Royal Veterinary College. Recently, as a fitting celebration to the 66th anniversary of his birthday, Mr. Buckingham added £250 to the College Funds—and this means the actual amount of £500 when the Government pound for pound becomes added. The wish of the old College is that it could find a few more workers possessed of the same enthusiasm and determination to help forward the good cause which aims at providing the much needed facilities to put the pioneer College of the English speaking nations in such a position that it can hold its head up amongst the Colleges and Veterinary Schools of the world.

Mr. H. G. STEWART, M.R.C.V.S., appointed Veterinary Officer for Uganda.

Mr. J. HEARD, M.R.C V.S., appointed Veterinary Officer for Nigeria

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